



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/707,018

11/14/2003

Bruce B. Doris

FIS920030189

1017

32074

7590

01/23/2006

INTERNATIONAL BUSINESS MACHINES CORPORATION

DEPT. 18G

BLDG. 300-482

2070 ROUTE 52

HOPEWELL JUNCTION, NY 12533

EXAMINER

LINDSAY JR, WALTER LEE

ART UNIT

PAPER NUMBER

2812

DATE MAILED: 01/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

EL

Office Action Summary	Application No. 10/707,018	Applicant(s) DORIS ET AL.	
	Examiner Walter L. Lindsay, Jr.	Art Unit 2812	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
4a) Of the above claim(s) 1-4 and 13-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 5-7 and 9 is/are rejected.
- 7) ☒ Claim(s) 8 and 10-12 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12/7/05</u> <i>2/25/06</i> | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

This Office Action is in response to an Election filed on 10/27/2005.

Currently, claims 1-20 are pending. Claims 1-4, and 13-20 are withdrawn from consideration.

Election/Restrictions

1. Applicant's election without traverse of claims 5-11 in the reply filed on 10/27/2005 is acknowledged.
2. Claims 1-4 and 13-20 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected method, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 10/27/05.

Specification

3. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 5-7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ravi et al. (U.S. Publication No. 2002/0142566, filed 5/23/2002) in view of Suguro (U.S. Publication. No. 2001/0039107 dated 11/8/2001).

Ravi shows the method substantially as claimed by Figs. 1a-8 and corresponding text as: a first semiconductor device (20) having a first gate stack (82), and a second semiconductor (20) device having a second gate stack (94) [0027] (claim 5). Ravi teaches that the first semiconductor material is a grained polysilicon [0027] (claim 6). Ravi teaches that the first semiconductor device is an nFET and said second semiconductor device is a pFET [0027] (claim 7). Ravi teaches that an isolation region is disposed between said first semiconductor device and said second semiconductor device [0027] (claim 9).

Ravi lacks anticipation only in not explicitly teaching that: 1) the first gate stack includes a first semiconductor material having an average grain size of less than approximately 30nm, and wherein said second gate stack includes a second semiconductor material having an average grain size of greater than approximately 30 nm. (claim 5).

Suguro describes the formation of a semiconductor device. The first gate electrode has an average grain size is 30 nm or less and the second gate electrode has a grain size of more than 30 nm [0094]. It is an advantage to permit variations in device characteristics to be controlled [0028].

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify Ravi by, having an average grain size of less than 30 nm for a first gate and an average grain size of more than 30 nm for the second gate electrode, as taught by Suguro, with the motivation that Suguro teaches that advantage to permit variations in device characteristics to be controlled.

Allowable Subject Matter

7. Claims 8 and 10-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter L. Lindsay, Jr. whose telephone number is (571) 272-1674. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael S. Lebentritt can be reached on (571) 272-1873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2812

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Walter L. Lindsay, Jr.
Examiner
Art Unit 2812

WLL

January 17, 2006

A handwritten signature in black ink, appearing to read "Walter L. Lindsay, Jr.", is written over the typed name and date.